

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method of motion-compensated interpolation of a data-signal, ~~which said data-signal comprises~~ comprising successive images wherein each image comprises groups of pixels, the method comprising the steps of:

5 generating ~~(18)~~ motion vectors, each motion vector corresponding to a group of pixels of one image, between a group of pixels of said one image and a second group of pixels of another image in the data-signal;

 generating ~~(16)~~ interpolated results as a function of
10 these motion vectors;

 estimating ~~(20)~~ the reliability of each motion vector corresponding to a particular group of pixels;

 calculating ~~(20)~~ weights as a function of the reliability of the motion vectors; and

15 generating ~~(20)~~ an interpolated luminous intensity of a group of pixels for an interpolated image by calculating, on the basis of these weights, a weighted average of the interpolated results.

2. (Currently Amended) ~~A method according to claim 1~~ A method of motion-compensated interpolation of a data-signal, said data-

signal comprising successive images wherein each image comprises groups of pixels, the method comprising the steps of:

5 generating motion vectors, each motion vector corresponding to a group of pixels of one image, between a group of pixels of said one image and a second group of pixels of another image in the data-signal;

generating interpolated results as a function of these motion vectors;

estimating the reliability of each motion vector corresponding to a particular group of pixels;

calculating weights as a function of the reliability of the motion vectors; and

15 generating an interpolated luminous intensity of a group of pixels for an interpolated image by calculating, on the basis of these weights, a weighted average of the interpolated results,
wherein the interpolated luminous intensity of a group of pixels is calculated according to:

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$$I^{k+\Delta}(\bar{x}) = (\sum_{m=1, \dots, M} \{w_m^k(\bar{x}) * i^{k+\Delta}_m(\bar{x})\}) / \sum_{m=1, \dots, M} \{w_m^k(\bar{x})\}, \quad (A)$$

wherein $I^{k+\Delta}(\bar{x})$ is the interpolated luminous intensity of the group of pixels of an interpolated image $F^{k+\Delta}$, wherein the location of the group of pixels in the image is defined by the integer two-

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dimensional vector \vec{x} and where the real value Δ defines the place of the interpolated image $F^{k+\Delta}$ in the image sequence F^n , $n=1,2,\dots,k,k+1,\dots,N$, wherein $\sum_{m=1,\dots,M} \{.\}$ is a summation from 1 to M over its argument $\{.\}$ and where $w_m^k(\vec{x})$ is a weight

30 corresponding to the m^{th} interpolation result $i^{k+\Delta}_m(\vec{x})$:

$$i^{k+\Delta}_m(\vec{x}) = \text{median} \{ (I^k(\text{round} \{ \vec{x} - \Delta * \vec{D}_m^k(\vec{x}) \})), \\ (I^k(\vec{x}) + I^{k+1}(\vec{x}))/2), \\ (I^{k+1}(\text{round} \{ \vec{x} + (1 - \Delta) * \vec{D}_m^k(\vec{x}) \})) \}, \quad (\text{B})$$

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wherein $\text{median}\{.\}$ is a function which gives the median value of its input arguments and $\text{round}\{.\}$ is a function which gives the nearest integer value to each component of its input argument, and wherein $I^k(\vec{x})$ is a luminous intensity of the group of pixels at location \vec{x}

40 of the image F^k and wherein $\vec{D}_m^k(\vec{x})$ is the m^{th} two-dimensional integer motion vector, which is ~~normalised~~ normalized between two successive images, of the M motion vectors which correspond to the group of pixels at location \vec{x} and wherein the weight $w_m^k(\vec{x})$ is a function of the reliability of the motion vector $\vec{D}_m^k(\vec{x})$.

3. (Currently Amended) ~~A-The method according to~~ as claimed in claim 2, wherein the reliability of the motion vector $\vec{D}_m^k(\vec{x})$ is a

function of the difference between the luminous intensities $I^k(\bar{x})$ and $I^{k+1}(\bar{x} + \bar{D}_m^k(\bar{x}))$ and wherein the reliability is also a function of the relative frequency of occurrence of $\bar{D}_m^k(\bar{x})$ in the neighborhood of the location \bar{x} in the image F^k .

4. (Currently Amended) ~~A method according to claim 1,~~ wherein the generation of interpolated luminous intensities ~~according to the invention~~ is only performed in those parts of the images of the data-signal where edges in the motion vector field of the images are located.

5. (Currently Amended) ~~A method according to claim 4~~ A method of motion-compensated interpolation of a data-signal, said data-signal comprising successive images wherein each image comprises groups of pixels, the method comprising the steps of:

5 generating motion vectors, each motion vector corresponding to a group of pixels of one image, between a group of pixels of said one image and a second group of pixels of another image in the data-signal;

generating interpolated results as a function of these

10 motion vectors;

estimating the reliability of each motion vector corresponding to a particular group of pixels;

calculating weights as a function of the reliability of
the motion vectors; and

15 generating an interpolated luminous intensity of a group
of pixels for an interpolated image by calculating, on the basis of
these weights, a weighted average of the interpolated results,
wherein the generation of interpolated luminous intensities is only
performed in those parts of the images of the data-signal where
20 edges in the motion vector field of the images are located, and
wherein the method comprises a step of edge detection, wherein an
edge in the motion vector field of image P^k is detected if at least
one of the inequalities (C1) and (C2) is satisfied:

$$25 \quad \|[\bar{D}_q^k(\bar{x} - \bar{K})]_1 - [\bar{D}_q^k(\bar{x} + \bar{K})]_1\| > T, \quad (C1)$$

$$\|[\bar{D}_q^k(\bar{x} - \bar{K})]_2 - [\bar{D}_q^k(\bar{x} + \bar{K})]_2\| > T, \quad (C2)$$

where q is a pre-determined integer value and wherein $\|\cdot\|$ is a
30 function which yields the absolute value of its input argument, $[\cdot]_1$,
is a function which yields the p^{th} component of its vector input
argument, where T is a pre-determined fixed real value threshold
and wherein \bar{K} is a vector which is given with:

$$35 \quad \bar{K} = (K_1; K_2)^T, \quad (D)$$

where K_1 and $K_1 - K_2$ are integer values.

6. (Currently Amended) A device for motion-compensated interpolation of a data-signal, ~~which said data-signal comprises~~ comprising successive images wherein each image comprises groups of pixels, the device comprising:

5 means ~~(18)~~ for generating motion vectors, each motion vector corresponding to a group of pixels of one image, between a group of pixels of said one image and a second group of pixels of another image in the data-signal;

means ~~(16)~~ for generating interpolated results as a
10 function of these motion vectors;

means ~~(20)~~ for estimating the reliability of each motion vector corresponding to a particular group of pixels;

means ~~(20)~~ for calculating weights as a function of the reliability of the motion vectors; and

15 means ~~(20)~~ for generating interpolated luminous intensities of groups of pixels by calculating, on the basis of these weights, weighted averages of the interpolated results.

7. (Currently Amended) A picture signal display apparatus, comprising:

means ~~(12)~~—for receiving a data-signal, which data-signal
comprises successive images wherein each image comprises groups of

5 pixels;

a device ~~(10)~~—for motion-compensated interpolation of said
data-signal, as claimed in claim 6;

means for generating at least one interpolated image on
the basis of said interpolated luminous intensities; and

10 means ~~(D)~~—for displaying the at least one interpolated
image.